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Description of a new species of *Planotetrastichus* Yang (Hymenoptera: Eulophidae) from China

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Abstract: *Planotetrastichus tianjinensis* **sp. nov.** (Hymenoptera: Eulophidae), a novel parasitoid wasp species, is described and illustrated from Tianjin, China. Detailed morphological characteristics and figures are provided in this study.

Keywords: Chalcidoidea, new taxon, parasitoid, taxonomy

中国扁体啮小蜂属一新种记述（膜翅目：姬小蜂科）

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摘要：本文报道了罕见的扁体啮小蜂属（膜翅目：姬小蜂科）一新种——天津扁体啮小蜂 *Planotetrastichus tianjinensis* **sp. nov.**，并提供新种的详细形态特征和形态图片。

关键词：小蜂总科，新单元，寄生蜂，分类学

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Introduction

The genus *Planotetrastichus* Yang (Hymenoptera: Eulophidae: Tetrastichinae) was originally proposed by Yang (1996) based on its type species *Planotetrastichus scolyti* Yang from Shannxi Province of China. Currently recognized as a monotypic genus, *Planotetrastichus* remains one of the rarest taxa within the Tetrastichinae, and no additional species have been described. *Planotetrastichus* can be easily recognized by the extremely flat head and mesosoma in Tetrastichinae. Other characteristics are following: malar sulcus absent; antenna funicle with 3, clava with 3 segments, torulus with upper edge below the ventral edge of eyes; pronotum conical; notaulus broad and deep, mid lobe of mesoscutum without median line; parastigma of forewings with a pellucid band at the junction of parastigma and marginal vein; ovipositor sheaths not extending beyond the apex of gaster.

Planotetrastichus is most similar to *Aceratoneuromyia* in stout funicle segments. However, the extremely flat body, parastigma with a pellucid band and malar sulcus absent can distinguish *Planotetrastichus* from *Aceratoneuromyia*. *Planotetrastichus* species can parasitize the pupae and larvae of scolytid species (Yang 1996).

Material and methods

Sample collection and morphological study

Specimens were collected by Malaise trapping and were dissected and mounted (dorsal side up) in Canada balsam following the method described by Noyes (1982) or glued to triangular cards. Photographs and specimen measurements were taken with a Leica DFC 500 digital camera attached to a Lecia DM 4000 B compound microscope. In the descriptions below, measurements/ratio in brackets after measurement/ratio ranges refer to the holotype. The terminology follows Graham (1987) and Gibson (1997). The following abbreviations are used:

F1–4 (flagellomeres 1–4);

C1–3 (clavomeres 1–3).

Taxonomy

Planotetrastichus tianjinensis sp. nov.

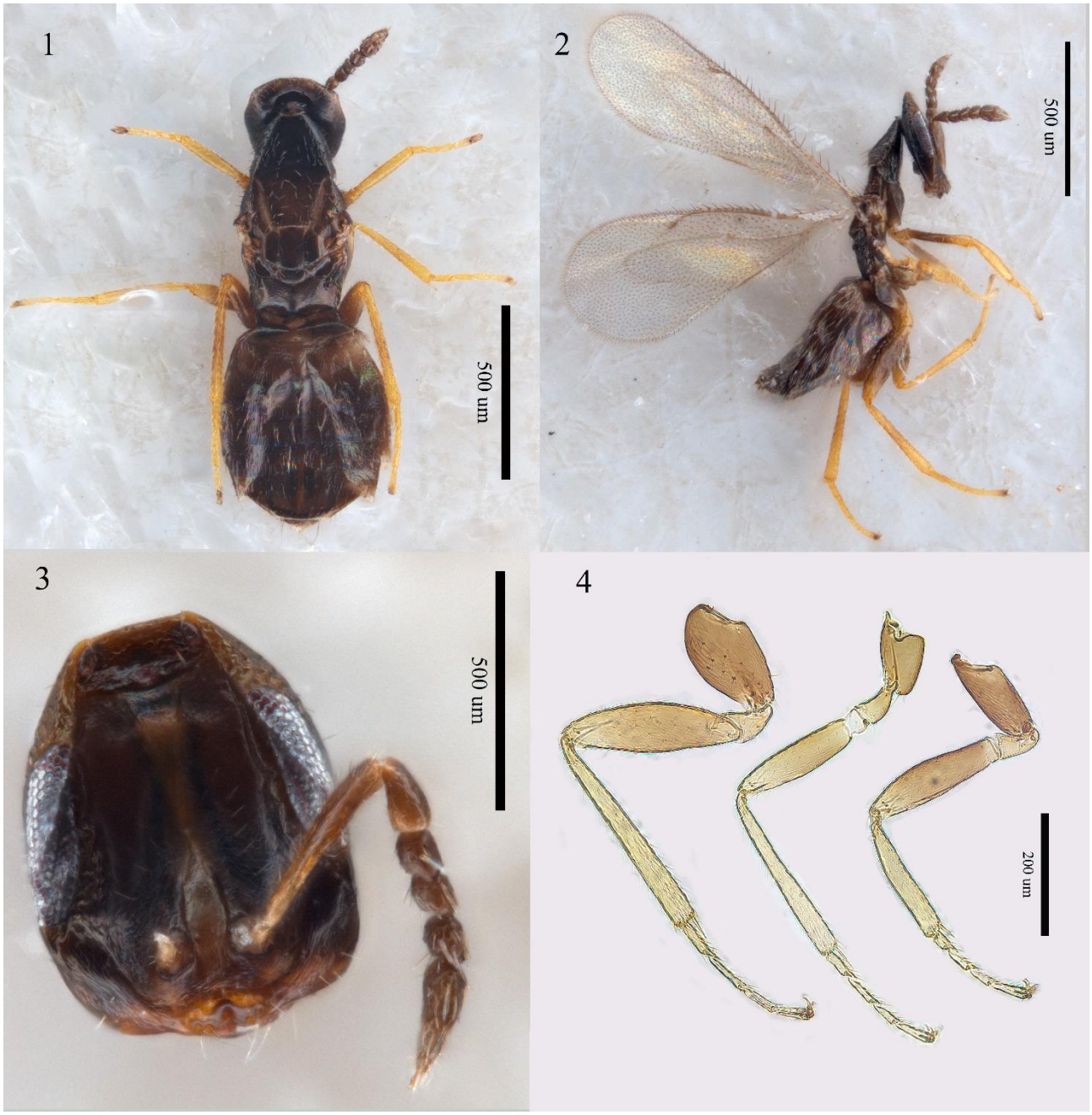
https://zoobank.org/85DFA96D-351F-4875-B82A-912AA59DCCC8

Figs 1–5

Type material. Holotype: female [on card], CHINA, Tianjin City, Tianjin Academy of Agricultural Sciences, 13–30.VIII.2022, Guo-Hao Zu, by Malaise trapping (deposited in Yancheng Teachers University). **Paratypes:** 3 females. [1 female], same data as holotype; [2 females], same locality as holotype, but collected 28.V–13.VI.2022 and deposited in Tianjin Agricultural University.

Diagnosis. Female. Body with head and mesosoma extremely flat; pronotum long, bell-shaped; surface of pronotum covered with dense erect setae except anterior-medially; mid lobe of mesoscutum without median line, surface covered with about 40 erect setae irregularly; scutellum with shallow submedian grooves; parastigma with a pellucid band at the junction of parastigma and marginal vein.

P. tianjinensis is similar to *P. scolyti* Yang in extremely flat mesosoma, but can separated from it by the following combination of characteristics: surface of pronotum covered with dense erect setae except anterior-medially (vs. two rows setae posteriorly); surface of mid lobe of mesoscutum covered with about 40 erect setae irregularly (vs. two adnotaular setae in one row on each side); scutellum with shallow submedian grooves (vs. without); gaster about equal to mesosoma in length, 1.1–1.3× as long as broad (vs longer than, 1.7×).



FIGURES 1–4. *Planotetrastichus tianjinensis* **sp. nov.**, habitus, female: **1** holotype, dorsal view **2** paratype, lateral view **3** *Planotetrastichus tianjinensis* **sp. nov.**, paratype, female, head, frontal view **4** legs, lateral view, from left to right: hind, mid, and fore legs.

FIGURES 5, 6. *Planotetrastichus tianjinensis* **sp. nov.**, paratype, female: **5** forewing, dorsal view **6** antenna, lateral view.

Description. *Female.* Body length 1.2–1.3 mm (1.3 mm). Head mainly black, anterior margin of clypeus and mandible dark yellowish-brown. Antenna with scape and pedicle dark yellowish-brown, funicle brown. Mesosoma mainly dark brown, only pronotum black, legs with all coxae and mainly femora dark brown, tips of femora, trochanters, tibiae and tarsomeres yellowish, terminal tarsomere yellowish-brown. Wings hyaline, venation brown. Gaster black, with the first gastral segment brown to black.

Head (Fig. 1) in dorsal view, only occiput visible, slightly broader than mesosoma. Head in frontal view (Fig. 3), depressed deeply, 0.8× as long as high. Vertex and face with numerous erect white setae. Ocellar triangle overall visible, ocelli arrangement in obtuse triangle. Upper edge of antennal toruli situated below level of ventral edge of eyes. Malar sulcus absent; gena expanded. Anterior margin of clypeus bidentate, mandibles tridentate, outer teeth sharp. Antenna (Fig. 6) covered with dense short setae, scape not reaching beyond eyes, 3.4–3.5× (3.5) as long as broad; pedicel longer than F1, 1.6–1.8× (1.8×) as long as broad; 1 discoid anellus; funicle stout, each segment quadrate, subequal in length; clava distinctly longer than F2 and F3 combined, broader than F3, 2.5–2.8× (2.5×) as long as broad, terminal spine distinct, 0.6× as long as C3, apical seta of spine very short, visible hardly; flagellomeres with numerous erect short setae.

Mesosoma slender (Fig. 1), about 2.0× as long as broad. Pronotum long, bell-shaped, 0.7–0.8× (0.8×) as long as mesoscutum medially; surface of pronotum covered with dense erect setae except anterior-medially, reticulation distinct. Mid lobe of mesoscutum 1.2–1.3× (1.2×) as broad as long, without median line, surface covered with about 40 erect setae irregularly, especially a pair of long black setae posteriorly, near notaulus, reticulation extremally fine. Lateral lobe of mesoscutum also covered with dense erect setae. Notaulus deep and broad. Scutellum transverse, 1.5–1.7× (1.7×) as broad as long; anterior pair of setae before middle, only a pair of shallow submedian grooves, reticulation distinct. Propodeum smooth, medially distinctly longer than dorsellum, 2.0× as long as dorsellum, reticulation distinct; median carina weak only present on posterior half, without paraspiracular carina; spiracles round, small size, separated from metanotum by slightly less than their own diameter; callus with 7–8 (7) setae. Fore wing (Fig. 5) 2.4–2.5× (2.5×) as long as broad; parastigma with a pellucid band at the junction of parastigma and marginal vein, marginal vein 4.0–5.0× (5.0×) stigmal vein; submarginal vein with 5 dorsal seta; speculum small; marginal setae short. Hind wing 6.0× as long as broad. Legs (Fig. 4) with procoxa slender, 2.5× as long as broad, metacoxa stout, 1.8× as long as broad, spur of metatibia as long as length of metabasitarsus.

Gastral petiole transverse (Fig. 1), visible dorsally, without sculpture. Gaster circular to oval (Fig. 1), about equal to mesosoma in length, 1.1–1.3× (1.1×) as long as broad, reticulation extremely fine； the longest cercal seta 2× as long as the second longest; spiracle invisible dorsally. Ovipositor sheaths not extending beyond the tip of gaster; tip of hypopygium situated at 1/2 of gaster.

Male. Unknown.

Host. Unknown.

Distribution. China (Tianjin).

Etymology. The specific epithet *tianjinensis* refers to the type locality Tianjin.

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Additional information

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广西华缺翅螳 *Sinomiopteryx guangxiensis* Wang & Bi, 1993
Shengtang Mountain Scenic Area [圣堂山景区], Guangxi
photograph by Zi-Hao ZHU [朱梓豪]